ALMAZOV, V.A.; SHCHUKIN, V.B.; ROMM, R.S.

Detection of the leucopoietic activity of blood plasma in diseases of the blood system. Lab. delo no.3:160-165 '65.

(MIRA 18:3)

1. Kafedra fakul'tetskoy terapii (zaveduyushchiy - prof. T.S. Istmanova) I Leningradskogo meditsinskogo instituta im. I.P. Pavlova.

SHCHUKIN, V.F., inzhener.

Investigating the moment of force acting on units of a continuous
steel casting installation. Stal' 17 no.4:320-322 Ap '57.
(MLRA 10:5)

1.Novo-Tul'skiy metallurgicheskiy zavod.
          (Steel--Electrometallurgy)
               (Mechanics)

SECHUKIN, V. F., Candidate Tech Sci (diss) -- "Experimental investigation of the power effects in the continuous casting of steel". Moscow, 1959. 14 pp (Main Admin of Sci Res and Design Organizations of the Gosplan USSR, Central Sci Res Inst of Tech and Machinebuilding TsNIITMash), 150 copies (KL, No 23, 1959, 169)

SHCHUKIN, V.I.

Organization of the operation and repair of building machinery.
Energ.stroi. no.5:197-201. '58.   (MIRA 12:5)

1. Glavnyy mekhanik Kuybyshevgidrostroya.
   (Volga Hydroelectric Power Station--Building machinery)

KAGAN, V.N.; SHCHUKIN, V.I.; TSEGEL'SKIY, V.L., inzh., nauchn.
red.; PATENOVSKAYA, M.I. red.izd-va; MOCHALINA, Z.S.,
tekhn. red

[Gas welding and cutting in construction] Gazovaia svarka
i rezka v stroitel'stve. Moskva, Gosstroiizdat, 1963. 113 p.
(MIRA 16:11)
(Gas welding and cutting)

SHCHUKIN, V. K.

PHASE I   TREASURE ISLAND BIBLIOGRAPHICAL REPORT   AID 451 - I
BOOK
  Author: SHCHUKIN, V. K., Kand. of Tech. Sci.   Call No.: AF640322
  Full Title: ASSAULT ON THE SKY (HOW TO STUDY THE ATMOSPHERE)
  Transliterated Title: Shturm neba (Kak izuchayetsya atmosfera)
Publishing Data
  Originating Agency: None
  Publishing House: State Publishing House of Technical and
                 Theoretical Literature
  Date: 1953   No. pp.: 48   No. of copies: 150,000
  Editorial Staff: None
Text Data
  Coverage: This monograph of the series "Scientific-Popular Library" de-
  scribes atmospheric phenomena and their investigation in an extremely
  popular form. It is a propaganda book asserting that all discoveries
  in meteorology and all achievements in aviation are due to Russian
  scientists. The booklet contains brief descriptions and illustrations
  of various meteorological instruments. It mentions ascensions of
  Soviet flyers on aerostats and stratosphere balloons, with names, dates
  and attained heights (p. 21-24). It describes briefly sonde balloons,
  the radiosonde balloon of Prof. P. A. Molchanov, rockets (pp. 29-37, 48).

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  Introduction   PAGE
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S.CHURKIN, V.K.; ZOLOTSKIY, A.V.

"Rabochiye protsessy v zhidkostnoreaktivnykh dvigatelyakh"

Oborongiz   1953

BOGARSKIY, Andrey Vladimircvich; SHCHUKIN, V.K.

[Working processes in liquid-fuel jet engines]Rabochie
protsessy v zhidkostno-reaktivnykh dvigateliakh. Moskva,
Gos.izd-vo obor. promyshl., 1953. 424 p. (MIRA 15:8)
(Jet propulsion)

AID P - 4363

Subject   : USSR/Heat Engineering

Card 1/1   Pub. 110-a - 8/19

Authors   : Shchukin, V. K., Kand. Tech. Sci. Kazan Aviation
               Institute

Title   : The relation between the dimensions of a one-stage
               flow-compressor and its efficiency.

Periodical : Teploenergetika, 4, 27-35, Ap 1956

Abstract   : Research on this relationship was made to determine
               the efficiency and uniformity of exit air flow. A
               comparison is made between flow-compressors with
               internal and external air intake. 13 diagrams.

Institution : None

Submitted   : No date

SOV/147 -58-1-14/22

AUTHOR: Shchukin, V.K.

TITLE: On the Compression Ratio of a Jet Engine for Minimum
           Transverse Dimensions (Stepen' szhatiya kompressora,
           obespechivayushchaya minimal'nyye poperechnyye gabarity TRD)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy,
               Aviatsionnaya Tekhnika, 1958, Nr 1, pp 113-125 (USSR).

ABSTRACT: An engine with a two-stage compressor and no re-heat
       is discussed. The transverse dimensions are conveniently
       evaluated in terms of the "frontal thrust". The intake, com-
       pressor, combustion chamber, turbine and exhaust pipe are con-
       sidered separately. In the first part of the article,
       expressions are given for the "frontal thrust" in the various
       parts of the engine. In the second part, the compression ratio
       corresponding to the maximum "frontal thrust" is discussed.
       Finally, the optimum compression ratio and the maximum "frontal
       thrust" are plotted against an undefined parameter M_h for

       various local velocities and temperatures. It appears that
       an increase in the local velocity causes an increase in the
       optimum compression ratio and a reduction in the maximum
       "frontal thrust". At sonic speeds, when the transverse
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On the Compression Ratio of a Jet Engine for Minimum Transverse
Dimensions

SOV/147-58-1-14/22

dimensions are determined by the compressor, the local
velocity has little effect on the maximum "frontal
thrust" and at large supersonic speeds a reduction in the
local velocity leads to an increase in the capacity of
the turbine, which in these conditions is largely the
limiting criterion. The optimum compression ratio
increases with $\bar{n}$ where $\bar{n}$ is the ratio of the r.p.m.
in the second stage to the r.p.m. in the first stage of
the compressor. There are 9 figures and 2 tables

ASSOCIATION: Kafedra teplovykh dvigateley, Kazanskiy aviatsionnyy
institut (Kazan Aviation Institute, Chair of Heat
Engines)

SUBMITTED: October 4, 1957

Card 2/2   1. Jet engines--Design   2. Combustion chambers--Analysis
3. Compressors--Applications

SOV/147-58-3-13/18

AUTHOR: Shchukin, V.K.

TITLE: Boosting of Turbo-Jet Engines in High Speed Flight by
             Injection of a Liquid Ahead of the Compressor
             (Vozmozhnosti forsirovaniya TRD vpryskom zhidkosti pered
             kompressorom pri bol'shikh skorostyakh poleta)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya
             Tekhnika, 1958, Nr 3, pp 105-111 (USSR)

ABSTRACT: Augmentation of the thrust of turbojet engines can be
             obtained without a change of the turbine speed by
             injecting a liquid in front of the turbine compressor
             at a station between X and 1 (Fig.1). The liquid
             evaporates and this increases the pressure and decreases
             the temperature at the given station. As a result of
             these changes the mass flow of the air through the engine
             is increased as well as the pressure difference through
             the nozzle giving eventually an increased thrust.
             Relating the expressions for the thrust of a boosted
             engine and for the engine without boosting when working
             at its maximum rating we get Eq.1, where w - velocity
             of flow; p^* and T^* - stagnation pressure and temperature;

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a Liquid Ahead of the Compressor

m - coefficient in the mass flow equation;
g_r - quantity of the injected liquid per kg of air;
$\bar{p} = P_\phi/P_h$ - rate of boosting of the engine;
λ - reduced velocity;
$q(\lambda)$ - gas dynamics function;
β - coefficient expressing the mass flow increase as a
result of addition of fuel and liquid.
The indices denote the respective stations in the engine
as shown in Fig.1; the index o denotes the boosted
range of work of the engine. Relating the specific
liquid consumption during the boosted cycle to the
specific fuel consumption of the unboosted engine at
the maximum output (conditions of flight being the same
in both cases) we get Eq.2, where $\bar{c}_r = c_r/c_{ph}$ and c_r
is the specific consumption of the liquid per kg of
thrust of the boosted engine;
C_{ph} - is specific fuel consumption without boosting;
g_τ - quantity of fuel per kg of air used without boosting
the engine; that balance between x and 1 gives
Card 2/6   Eq.3, where t - temperature in $^\circ C$; c_{pB} - specific heat

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of air (per unit weight); r - latent heat of
vaporization of the liquid; $t_{\ast}$ and $c_{\ast}$ - temperature
and specific heat of the liquid; $c_{p\eta}$ - specific heat of
the vapour of the liquid. Relation between specific
consumption of fuel in boosted and unboosted engine is
given by Eq.4, while balance of heat for the combustion
chamber yields Eq.5, where S - is the weight content of
the combustive component in the injected liquid; H_u and
$H_{u\phi}$ - calorific value of the fuel and the combustive
component of the liquid; ζ and ζ_o - coefficient of the
completeness of combustion of fuel and liquid. The
economy of the engine work with boosting is given by the
total specific consumption (Eq.6). The amount of liquid
which can be injected depends on the design of the
compressor and the following two factors: 1) saturation
limit of the given liquid vapour in the air; 2) limiting
speed of air flow at the entrance to compressor which
must remain subsonic. If the liquid is a mixture of water
and alcohol Eq.7 and 12 give the limiting amount of

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mixture which can be injected. Here d_{PRED_2} and d_{PRED} —
water vapour content in one kg of the air intake
in the state of saturation; g_B and g_{CP} — weight content
of water and alcohol per kg of air intake; γ_S and
γ_{SUK} — specific weight of dry saturated vapour and dry
air; k — adiabatic index; φ_0 — relative humidity of the
atmospheric air (air intake). The temperature ratio of
Eq.7 may be taken as given in Eq.13 and pressure ratio
as given by Eq.14. At the start and at low speeds the
amount of admissible liquid injection is small but it
grows with velocity of flight and height as shown in
Fig.2. It has been assumed that the engine is always
running at its maximum speed. Augmentation of thrust
and changes in economy due to boosting for a given
engine depends on the amount of injected liquid, main
parameters of the design and the conditions of flight.
This shown in Fig.3 (the speed is given by $M_p = 1.7$;
the height is 11 km and the compression ratio is
$\pi_{ko} - 11,8$). With compression ratio greater than 8 it
Card 4/6 has been assumed that the engine is of two-cascade type;

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a Liquid Ahead of the Compressor

and the regulation of the engine to obtain the maximum
thrust was assumed to be achieved by maintaining constant
the revolutions of the first cascade of the compressor
and by keeping constant the temperature at the inlet to
the turbine. Water is taken as the injected liquid.
Finally it was assumed that the coefficient of fulness
of combustion is the same in the boosted and unboosted
flight. Fig.4 shows that the rate of boosting of the
engine varies only slightly with the characteristic
parameters of the engine (i.e. compression ratio Π^*_{ko}
and the temperature of gases before the turbine
T_3^*) but with larger compression ratio it grows faster.
Fig.5 shows the variation of the rate of boosting with
the speed of flight. It can be seen that the extra
thrust increases with speed and height but at the same
time the economy deteriorates; the overall fuel and
liquid consumption increases. It must be mentioned that
when boosting an engine by means of injection of a liquid
ahead of the compressor it may prove necessary to increase
the diameter of the air intakes in order to admit a

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larger air intake due to injected liquid (this applies
mainly when boosting takes place in conditions of
maximum air flow). This will lead to increase in the
thrust needed per unit of frontal area as shown in
Eq.15, where P_A^B – thrust developed per unit of frontal
area based on the air intake; G_B – weight rate of flow
of the air through the engine; $\bar{P}_y = P_{\bar{y}\phi}/P_y$ where P_y is the
specific thrust. There are 5 figures.

ASSOCIATION: Kazanskiy Aviatsionnyy Institut, Kafedra Teplovykh
Dvigateley (Kazan' Institute of Aeronautics, Chair of
Heat Engines)

SUBMITTED: 21st November 1957.

Card 6/6

AUTHOR: Shchukin, V. K.   SOV/147-58-4-11/15

TITLE: Boosting Turbojet Engines by Injection of Compressed Air
Before the Compressor (Forsirovaniye VRD struynym szhatiyem
vozdukha pered kompressorom)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya
tekhnika, 1958, Nr 4, pp 92-100 (USSR)

ABSTRACT: Fig 1 shows diagrammatically the system. Compressed air
is supplied from a bottle through nozzles (ducts) and
is introduced into the engine upstream of the compressor.
This results in a higher overall compression ratio of
the system, a higher gas flow and finally an increased
thrust. The compressed air injectors analysed in this
article consisted of four active nozzles and the relative
length of the mixing chamber was $\bar{\ell} = 2$ (with 12 nozzles
the same characteristics were obtained when $\bar{\ell} = 1$, and
with $\bar{\ell} = 0$ they are slightly inferior). The increase of
the thrust due to boosting is limited by the capacity of
the air intake of the engine. It can be expressed thus:

$$\bar{G}_{supply} = \frac{n+1}{n} \frac{\sigma_a}{\sigma_B} \frac{\alpha \bar{p}_a^{*} (n\sqrt{\theta}) n_p}{q(\lambda_{B_0})} \quad (1)$$

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Boosting Turbojet Engines by Injection of Compressed Air Before the Compressor

This equation relates the mass flow of the air through the injectors at the limit of their range of operation with that through the air intake, where:

G_{lnp} — limiting air flow through the injectors,

G_{B_O} — air flow through the un-boosted engine,

σ_a and σ_B — pressure coefficients of the sub-critical parts of the active nozzles and the inlet part of the passive air duct, respectively,

$\bar{p}_a^x$ — the ratio of the full active and passive air pressures.

θ — the ratio of the passive and active air stagnation temperatures,

λ_{B_C} — reduced velocity of the air at the intake of the un-boosted engine,

q — gas dynamics function,

n — coefficient of ejection.

Fig 2 shows dependence of the extra capacity of the air
Card 2/7   intake on the parameters of the injectors at $\theta = 1$

Boosting Turbojet Engines by Injection of Compressed Air Before the Compressor

during starting conditions. The relation

$$(n\sqrt{\theta})_{np} = f(\alpha, \bar{p}_a^{*})$$

was estimated from experimental data, and it was assumed that $\sigma_a = \sigma_B$.   Eq (2):

$$P = \bar{\pi}^{*}\, \bar{v}_{2}\; \pi_{mK}^{x}$$

gives the degree of boosting of the engine during starting conditions (T_3^{*} = const and critical pressure gradient in the turbine), where:

P – thrust of the boosted engine,
P_0 – thrust of the un-boosted engine,
$\bar{\pi}^{*}$ – increase in /overall compression ratio due to injectors,
π_{mK}^{*} and $\pi_{mK_0}^{*}$ – compression ratios across the compressor of the boosted and unboosted engine respectively.

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Boosting Turbojet Engines by Injection of Compressed Air Before the Compressor

As proved by the author in his publication: "Simultaneous operation of a mechanical compressor and a jet compressor (injector)"(Kazan' Institute of Aeronautical Eng.; Publication XL, 1958), relations (3) and (4) relate the performance of the two components, where:

π^*_{UK} – compression ratio of the injector,

$\sigma_{\mathcal{A}}$ – pressure coefficient of the diffuser without injector,

β – angle of diffusion of the passage C-1,

p^* and T^* – stagnation pressure and temperature of the flow,

F – cross-sectional area of the duct.

Fig 3 (bottom graphs) shows the characteristics of the injector and the upper graphs represent some intermediate stages of the relation (4).   In the analysis of the compression ratio through the compressor, the adiabatic process was assumed. The economy of the engine was assessed by relating the specific fuel consumption with the specific air consumption. Fig 4 shows possibilities

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Boosting Turbojet Engines by Injection of Compressed Air Before
the Compressor

of boosting the engine by the supply of compressed air
from a bottle at $\theta = 1$ and $\bar{p}_a^* = 3$. It is seen (top
graphs) that the thrust increases with increased active
air and with increased initial λ_{B_c}. Specific fuel

consumption of the boosted engine decreases in conformity
with increased specific thrust (middle graphs). Specific
air consumption increases with $\bar{G}_a$ and with a decrease of
λ_{B_c} (bottom graphs). Fig 5 shows the relation $\bar{P} = f(\bar{C}_B)$
for various values of $\bar{p}_a^*$. As the thrust increases the
economy of the boosted engine deteriorates. Although an
increase of pressure gradient in the active nozzle is
advantageous as far as the specific consumption of the
air is concerned, the change in this gradient affects
also $\bar{p}_a^*$ and produces a change of the design point
conditions for the injector. This affects only a little
the economy of the engine at $\bar{p}_a^* = 3$ or $\bar{p}_a^* = 4$, but for
Card 5/7   small increases of the thrust ($\bar{P} < 1.22$) the gradient

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$\bar{p}_a^* = 3$ seems to give a greater economy. Eqs (7) and (8) give the relations determining when the injector may become chocked. Here suffix "O" denotes parameters of the un-boosted engine. Fig 6 gives the corresponding graphs with $\bar{p}_a^* = 3$ and $\alpha = 0.1$. Up to the chocking of the injector nozzle the specific thrust of the boosted engine increases with θ and the specific consumption of air decreases; but once chocking develops the thrust remains stationary and the air consumption increases. The overall compression ratio (i.e. due to the compressor and the injector) remains also unchanged. For comparison sake Fig 6 gives also the lines of possible increase of the thrust by discharging the bottles directly into atmosphere through an additional nozzle (horizontal lines in the figure since this does not depend upon the temperature of the air in the intake). For $\theta = 1$ the two effects do not differ much; but for $\theta > 1$ the injector method is much more effective. Next, the author gives relations between the amount of air required for boosting

Card 6/7   the engine and the time of the boosting operation (Eq 9)

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and the volume of the bottles for this amount of air (Eq 10), while Fig 7 shows these relations in the form of graphs (per one ton of the initial thrust of the engine). Finally, Fig 8 shows how boosting is affected by the temperature of the gases at the entry into the turbine and by the compression ratio of the mechanical compressor. It is seen that the main engine parameters hardly affect the thrust increase and the specific fuel consumption, but the specific consumption of the air is affected strongly. There are 8 figures.

ASSOCIATION: Kafedra teplovykh dvigateley (Chair of Heat Engines) Kazanskiy aviatsionnyy institut (Kazan' Institute of Aeronautical Engineering)

SUBMITTED: March 26, 1958

Card 7/7

20(0);3(7)   PHASE I BOOK EXPLOITATION   SOV/3182

Shchukin, Viktor Konstantinovich
_____

Shturm neba (Assault on the Sky) 2d ed., rev. Moscow, Fizmatgiz, 1959. 62 p.
    (Series: Nauchno-populyarnaya biblioteka, vyp. 99) 50,000 copies printed.

Scientific Ed.: N. V. Bulysheva; Ed.: V. A. Mezentsov; Tech. Ed.: V. N.
    Kryuchkova.

PURPOSE: This booklet is intended for the general reader interested in the study
    of the atmosphere and outer space.

COVERAGE: This booklet is a popular account of Soviet studies of the atmosphere
    and outer space. Instruments used by the meteorological service are described.
    Soviet earth satellites and future prospects of space travel are briefly
    treated. No personalities are mentioned. No references are given.

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AVAILABLE: Library of Congress

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S/147/61/000/004/015/021
E194/E135

AUTHORS: Fedorov, I.G., Shchukin, V.K., Mukhachev, G.A., and
             Idiatullin, N.S.

TITLE: Heat transfer and hydraulic resistance of channels
             with pressed spherical projections

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
             Aviatsionnaya tekhnika, no.4, 1961, 120-127

TEXT: Plate type heat exchangers are particularly suitable
for aviation because of their small size and weight. Sheets with
pressed projections are particularly useful because the
projections increase the strength and improve the cooling.
V.G. Fastovskiy and Yu.F. Petrovskiy (Ref.4: Teploenergetika, no.1,
1959) made an experimental study of a heat exchanger in which the
rectangular ducts had spherical projections on the air side and
hollows on the steam side. The work showed that the heat transfer
coefficient of such surfaces was greater by a factor of 2.5-2.8
than for smooth surfaces. The improvement is attributed to
increased turbulence of the flow. The work described here was

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Heat transfer and hydraulic ....

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carried out on rectangular ducts consisting of two plates with
spherical projections. The projections were of various
transverse pitch and were located both in honeycomb and straight
line order. The main characteristics of the ducts are given in
the table. The relationship Nu = f(Re) was investigated in the
range of Reynolds numbers 1000 to 16500, and ξ = f(Re) in the
range Re = 500 to 18000. The experimental rig is described.
The water sides of the heat exchangers were filled to one third of
their height with distilled water and electric heaters were
installed to evaporate the water. The water vapour condensing on
cooling surfaces gives up its latent heat of vapourisation to a
flow of air passing through the ducts of the heat exchanger.
The usual measurement arrangements were made. Each of the four
bundles described in the table was investigated under about
twenty conditions with different rates of air flow covering the
Reynolds number range from 500 to 18000; in each case the
measurements were repeated after 15-20 minutes. A procedure was
worked out and the operation of the equipment was checked by
using a smooth-walled plate-type heat exchanger. Further tests

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showed that the heat balance error calculated from the input to
the internal heater and from the change in enthalpy of the
cooling air is about 6-10%. The r.m.s. error of the determina-
tion of air flow, and of the Re and Nu numbers and of the
resistance coefficient are, respectively, 2.2, 2.5, 4.5 and 5%.
Heat transfer results are well represented by the following
equations.
With honeycomb arrangement:

$$Nu_f = 0.54 \times 10^{-4} \, Re_f^{1.55} \quad (Re = 1000-2300), \qquad (3)$$

$$Nu_f = 0.95 \times 10^{-3} \, Re_f^{1.17} \quad (Re = 2300-10000), \qquad (4)$$

$$Nu_f = 0.0276 \, Re_f^{0.8} \quad (Re = 10000-16500). \qquad (5)$$

With the In-Line arrangement:

$$Nu_f = 0.44 \times 10^{-4} \, Re_f^{1.55} \quad (Re = 1000-2300), \qquad (6)$$

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$$Nu_f = 0.8 \times 10^{-3} Re_f^{1.17} \qquad (Re = 2300\text{-}10000), \qquad (7)$$

$$Nu_f = 0.0248 Re_f^{0.8} \qquad (Re = 10000\text{-}16500). \qquad (8)$$

The results show that for given values of the Reynolds number the Nu criterion is 15-20% higher in bundles with honeycomb arrangement of projections than those with the in-line arrangement. The Nu criterion of the bundles is greater by a factor of 2.1-1.65 than the Nu criteria for a bundle of flat sheets in the Re number range 2500-16500. These results are not entirely in line with those given in Ref.4, and the reasons for this are discussed. The following expressions adequately represent the results of resistance tests:

$$\xi = \frac{A}{(Re_f^{0.30})} \qquad (Re = 500\text{-}2300), \qquad (9)$$

$$\xi = \frac{B}{Re_f^{0.089}} \qquad (Re = 2300\text{-}18000). \qquad (10)$$

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The values of the coefficients A and B in Eqs (9) and (10)
are given in the table.   The results show that ducts with
spherical projection have higher resistance than do smooth ducts,
the actual amount depending upon the pitch and arrangement of
the projections.   There are 3 figures and 1 table.

ASSOCIATION: Kafedra teplovykh dvigateley, Kazanskiy
             aviatsionnyy institut (Department of Heat Engines,
             Kazan' Aviation Institute)

SUBMITTED: March 10, 1961

Key to Table Headings: (1) Number of bundle;   (2) Arrangement of
projections;   (3) Shape of duct;   (4) Length of bundle, mm;
(5) Height of bundle, mm;   (6) Equivalent diameter $d_{\ni\kappa}$ mm;
(7) Transverse pitch S_1, mm;   (8) Longitudinal pitch S_2, mm;
(9) Coefficient A;   (10) Coefficient B.

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S/096/62/000/001/007/008
E025/E435

AUTHOR   Shchukin V.K., Candidate of Technical Sciences
TITLE   The temperature state of porous walls in effusion
          cooling

PERIODICAL. Teploenergetika, no.1. 1962. 80-82

TEXT   It is stated that the opinion expressed in non-Soviet
literature that in the absence of radiated heat the temperature of
a cooler at the output of a pore is identical with the
temperature of the wall is incorrect.   The difference between the
determined by the conditions of heat exchange within the wall and
on its boundaries and without estimating and taking account of
these conditions. It is impossible to establish to what extent the
temperature of the wall.   For given temperatures of a hot gas and of a
cooler at the input of the cooling system and for given conditions
of motion the thermal state of the porous wall can be calculated
from a system of four equations each of which describes a balance
of heat per 1 m2 of wall surface. (The propagation of heat along
the wall is neglected.)   The heat transmitted by thermal
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The temperature state of porous ...

conductivity through the hot surface of the porous wall equals the
change in heat content of the cooler on flowing over the cold
surface of the wall and within the pores. The heat transmitted
by heat exchange to the cooler in the pores equals the change in
heat content of the cooler within the porous wall. The heat
transmitted from the hot gas to the wall equals the change in
heat content of the cooler from the input of the system to the exit
of a pore. The heat given out by cold surface of the porous wall
to the cooler equals the change of heat content of the cooler up
to its entrance into the porous wall. For the first and second
of these relations the variation of wall temperature with thickness
is required and for the second relation also the variation of
cooler temperature with wall thickness. The corresponding
equations are given and solved, and the results compared with those
obtained on the assumption that the temperatures of the wall and
cooler are equal at the exit of a pore and the relative error
calculated. Two numerical examples are quoted (Ref.3
S.A.Druzhinin Teploenergetika. no.9 1961) for stainless steel
walls with porosities of 30 and 50% respectively and with air
used as the cooler. Curves are given showing the relationship

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E025/E435

The temperature state of porous ...

between the error in the calculation of the wall temperature
caused by the assumption of equality of wall and cooler
temperatures and a parameter representing the intensity of heat
exchange within the porous wall, and the ratio of the temperatures
of the hot gas and cooler.   The effect on the error of the thermal
conductivity of the porous material, of the thickness of the
specimen and of the intensity of heat exchange on the side of the
hot gas are shown in the curves.   It is apparent from the graphs
that the errors are serious: they increase with the ratio of the
temperatures of the hot gas and the cooler, with decrease of
intensity of heat exchange within the wall, with decrease of the
thickness of the wall and of its thermal conductivity.   The
variation of the error with the coefficient of heat transfer from
the hot gas has a maximum.   In some of the cases quoted the
errors exceed 30%.   There are 6 figures and 3 references:
1 Soviet-bloc and 2 non-Soviet-bloc.   The two references to
English language publications read as follows:
Ref.1: P.Grootenhuis. J. of the Royal Aeronautical Society,
no.578, 1959; Ref.2: I. Friedman. J. Am. Rocket Soc., no.79,1949.
Card 3/4

The temperature state of porous ...

32538
S/096/62/000/001/007/008
E025/E435

ASSOCIATION: Kazanskiy aviatsionnyy institut
(Kazan' Aviation Institute)

Card 4/4

S/096/62/000/006/009/011
E194/E454

AUTHORS: Fedorov, I.G., Engineer, Idiatullin, N.S., Engineer,
            Shchukin, V.K., Candidate of Technical Sciences,
            Mukhachev, G.A., Candidate of Technical Sciences

TITLE: Heat transfer and hydraulic resistance of slot shaped
            ducts with conical indentations in honeycomb arrangement

PERIODICAL: Teploenergetika, no.6, 1962, 57-60

TEXT: Heat transfer and air resistance tests were made on a
plate type heat exchanger with ducts 3 mm wide, 145 mm high and
475 mm long.   The ducts were made of 0.5 mm sheet in which had been
pressed indentations in the shape of truncated cones with a base
diameter of 6.5 mm, cone angle of 30° and height of 1.5 mm,
arranged in honeycomb order at various pitches.   The tips of the
cones of one plate were in contact with the corresponding tips of
indentations in the opposite plate of the duct.   Two such sheets
soldered together at the edges and with fixing flanges attached
formed the test bundles.   Electrically heated water supplied heat
to the test bundle and it was removed by a flow of air.   The test
arrangements are described.   The tests were carried out with a

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S/096/62/000/006/009/011
E194/E454

Heat transfer and hydraulic ,...

constant wall temperature of 110°C with an inlet air temperature of 22 to 23.5°C and a discharge air temperature ranging from 91 to 106°C, the mean air pressure in the duct was 1.01 to 1.23 kg/cm², the air flow 2 to 92 kg/hour and the specific thermal loading (0.18 to 11.6) x 10³ kcal/m² hour. The difference between the heat input to the heaters and the heat gained by the air was 6 to 10%. The methods used to check the equipment are described. For all the investigated ducts the experimental points lie within ∓ 6% of three straight lines of various slopes. The following equation applies for Reynolds numbers Re = 750 to 2500 (1)

$$Nu_f = 0.155 \times 10^{-3} Re_f^{1.41}$$

for Re = 2500 to 10000 (2)

$$Nu_f = 1.017 \times 10^{-3} Re_f^{1.17}$$

and for Re = 10000 to 18000 (3)

$$Nu_f = 0.0315 Re_f^{0.8}$$

Card 2/3

Heat transfer and hydraulic'...

S/096/62/000/006/009/011
E194/E454

For Reynolds numbers of 2000, 4000 and in the range from 10000 to 18000 the Nusselt criterion for ducts with conical indentations is greater than for a smooth duct by 2.0, 1.62 and 1.75 times respectively. The surface increase caused by the indentations ranges from 5 to 10% so the main cause of greater heat exchange with indentations is increased turbulence of flow. The resistance of the ducts was measured under both isothermal and nonisothermal conditions and the results are given in the form of empirical formulae with constants tabulated for ducts of different shape and pitch. There are 3 figures and 1 table.

ASSOCIATION: Kazanskiy aviatsionnyy institut
(Kazan' Aviation Institute)

Card 3/3

STREL'TSOV, V.V.; SHCHUKIN, V.K.; REBROV, A.K.; FUKS, G.I.; KUTATELADZE, S.S.;
    LYKOV, A.V.; PREDVODITELEV, A.S.; KONAKOV, P.K.; DUSHCHENKO, V.P.;
    MAKSIMOV, G.A.; KRASNIKOV, V.V.

Readers' response to I.T. El'perin's article "Terminology of heat and
mass transfer" in IFZh No.1, 1961. Inzh.-fiz. zhur. 5 no.7:113-133
Jl '62.   (MIRA 15:7)

1. Khimiko-tekhnologicheskiy institut, g. Ivanovo (for Strel'tsov).
2. Aviatsiomyy institut, Kazan' (for Shchukin, Rebrov). 3. Poli-
tekhnicheskiy institut, Tomsk (for Fuks). 4. Institut teplofiziki
Sibirskogo otdeleniya AN SSSR, Novosibirsk (for Kutateladze). 5.
Energeticheskiy institut AN BSSR, Minsk (for Lykov). 6. Gosudarstven-
nyy universitet imeni Lomonosova, Moskva (for Predvoditelev). 7.
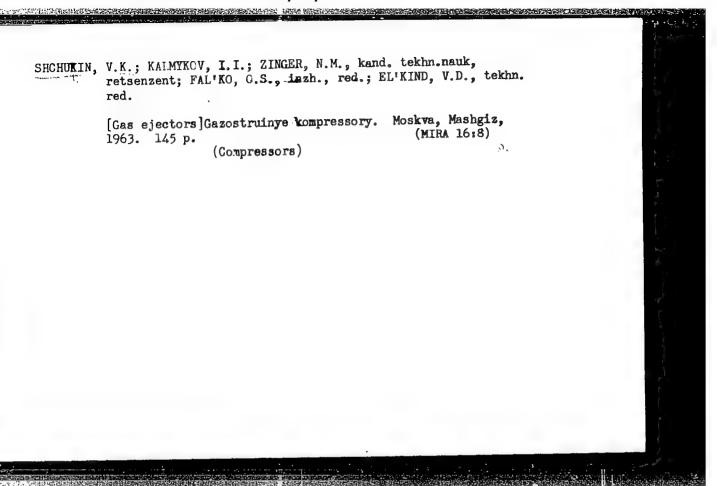Institut inzhenerov zheleznodorozhnogo transporta, Moskva (for Konakov).
8. Institut legkoy promyshlennosti, Kiyev (for Dushchenko).
9. Vsesoyuznyy zaochnyy institut pishchevoy promyshlennosti, Moskva
(for Maksimov). 10. Tekhnologicheskiy institut pishchevoy
promyshlennosti, Moskva (for Krasnikov).
        (Heat—Transmission)   (Mass transfer)

SHCHUKIN, V.K., kand.tekhn.nauk

Temperature state of a porous wall in effusion cooling.
Teploenergetika 9 no.1:80-82 Ja '62.   (MIRA 14:12)

1. Kazanskiy aviatsionnyy institut.
                    (Heat—Radiation and absorption)

SHCHUKIN, V.K.; KALMYKOV, I.I.; ZINGER, N.M., kand. tekhn.nauk, retsenzent; FAL'KO, O.S., inzh., red.; EL'KIND, V.D., tekhn. red.

[Gas ejectors]Gazostruinye kompressory. Moskva, Mashgiz, 1963. 145 p.   (MIRA 16:8)
                  (Compressors)

L 20708-66   EWT(l)/EWP(m)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T-2/EWP(k)/ETC(m)-6/EWA( )

ACC NR: AT6007554   JD/WW/EM/JXT(CZ   UR/2529/63/000/076/0026/0035

AUTHOR: Shchukin, V.K.

ORG: Kazan Aeronautical Institute, Kazan (Kazanskiy aviatsionnyy institut)

TITLE: Supplemental condition of similitude for flows in the field of mass inertia forces

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no. 76, 1963. Aviatsionnyye dvigateli (Airctaft engines) 26-35

TOPIC TAGS: hydrodynamics, hydrothermodynamics, incompressible fluid, jet engine, flow field, convective flow, turbine blade, jet engine

ABSTRACT: The author develops a generalized criterion of similitude for an incompressible fluid flow in the field of mass forces. Interest in this topic is generated by the complex character of fluid flow under the action of active mass forces, which decreases the probability of successful analytical solution, and thus favors an experimental approach. Convective flows offer well-known examples of active mass forces phenomena; stronger acceleration filds occur e.g. within the hollow cooled turbine blades of a jet engine. Active mass forces engender special flow patterns, distinct from turbulence or laminar flow, such as the double whirls in flow through bent tubes; toroidal whirls of Taylor in the gap between rotating coaxial cylinders, etc.. Starting

Card 1/2

L 20708-66

ACC NR: AT6007554   0

with an analysis of convective flows of a heated fluid without forced motion, and of
a uniform density fluid with forced rotation, the author analyses the general case of
active mass forces determined by simultaneous changes of density and acceleration,
using the method of similitude constants. Three interim criteria are obtained; elimi-
nation of the velocity variable from one of the criteria leads to the general crite-
rion:

$$P = \frac{\Delta F \cdot l^3}{\rho \cdot \nu^2} \qquad (1)$$

where: ΔF — the space differential of force on a fluid element; l — length; ρ — density,
and ν — the kinematic viscosity of the fluid. Forms of this general criterion, P, for
specific flow cases, are developed. Comparison of the "P" criterion with various cri-
teria of simulitude used at present for the generalization of experimental data per-
taining to hydrodynamics and heat exchange in the presence of mass inertia forces
shows that these criteria represent special cases of the P- criterion. The P — crite-
rion, for certain specific flow cases, reduces to the criteria of Dean, Taylor, and
others. Orig. art. has: 26 formulas.

SUB CODE: 20   SUBM DATE: 14Mar63   ORIG REF: 007   OTH REF: 008

Card 2/2 BK

L 17165-63   EPR/EPF(c)/EWT(1)/EPF(n)=2/BDS   AFFTC/ASD/IJP(C)/

SSD   Ps=4/Pr=4/Pu=4   WW

ACCESSION NR: AP3004291   S/0170/63/006/007/0007/0012

AUTHOR: Shchukin, V. K.

TITLE: Methods of evaluating the local heat-exchange coefficient in flow around
a cylindrical surface

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 7, 1963, 7-12

TOPIC TAGS: Local heat-exchange coefficient, cylindrical surface, radial tem-
perature gradient

ABSTRACT: When a liquid flows in a curved channel (see Fig. 1 of Enclosure 1),
there is a secondary circulation which changes the conditions of interaction
between liquid and wall, and affects the character of the change in the heat-
exchange coefficient according to the length of the channel. If the absence of
heat flows along the cylinder axis is to be insured in an experimental setup,
the temperature field in the cylindrical walls forming the channel will be two-
dimensional. Under this condition, the local heat-exchange coefficients on the
surfaces a'b' and dc can be determined from the experimentally measured distri-
bution of the temperatures on the contours a'b'c'd' and abcd, respectively, and

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L 17165-63

ACCESSION NR: AP3004291 O

from the gap in temperatures between liquid and the wall Delta t. Hence, determining the heat-exchange coefficient is simply a matter of finding the radial temperature gradient on the heat-exchange surface from the known temperatur s on all the surfaces of the contour. The article discusses the analytical and grid methods of solving this problem. With complete heat isolation of the side and end surfaces and an assigned distribution of the temperatures on surfaces ab and cd (or a'b' and c'd') the temperature field in the area abcd (or a'b'c'd') is found by solving the differential equation of heat conductivity

$$\frac{\partial^2 t}{\partial r^2} + \frac{1}{r}\frac{\partial t}{\partial r} + \frac{1}{r^2}\frac{\partial^2 t}{\partial \varphi^2} = 0.$$ (r = radial coordinate, φ = an-

gular coordinate). Figure 3 (see Enclosure 2) shows that ignoring the curvature of even a thin plate can result in substantial error in determining the tempera- ture gradient from the surface temperatures. The temperature gradient on the wall surface necessary to evaluate the heat-exchange coefficient can also be determined by the grid method described by A. V. Kantorovich, "Tables for the Numerical Solution of the Boundary Problems of the Theory of Harmonic Functions"

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ACCESSION NR: AP3004291

(Gostekhizdat, 1956) and also discussed in this article. Orig. has 2 diagrams and 17 numbered equations.

ASSOCIATION: Aviatsionnyy institut, Kazan' (Aviation Institute)

SUBMITTED: 08Oct62   DATE ACQ: 08Aug63   ENCL: 002

SUB CODE: PH   NO REF SOV: 002   OTHER: 001

Card 3/3

L 17607-65   EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T/EPA(bb)-2/EWA(1)   Pc-4/
Pr-4/Ps-4/Pi-4/Pu-4   RPL/ASD(f)-2/AS(mp)-2/AEDC(a)/AFWL/SSD/BSD/AFETR   JD/WW/
JW/MLK/RM
ACCESSION NR AM4046716   BOOK EXPLOITATION   S/

Bolgarskiy, Andrey Vladimirovich (Professor); Mukhachev, Gennadiy   R+l
    Alekseyevich (Docent); Shchukin, Viktor Konstantinovich (Docent)

Thermodynamics and heat transfer (Termodinamika i teploperedacha), Moscow,
    "Vy°sshaya shkola", 1964, 457 p. illus., biblio., tables. 9,500 copies
    printed.

TOPIC TAGS: thermodynamics, heat transfer

TABLE OF CONTENTS [abridged]:

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ACCESSION NR AM4046716

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ACCESSION NR AM4046716

O

Ch. VIII. Heat transfer upon a change in the aggregate state and upon the
   introduction of an alien substance into the boundary layer -- 327
Ch. IX. Heat transfer -- 369
Ch. X. Thermal conductivity in an unstationary regime -- 386
Ch. XI. Heat exchange equipment -- 403
Ch. XII. Thermal protection -- 421
Bibliography -- 439
Appendices -- 441

SUB CODE:TD   SUBMITTED: 05Jun64   NR REF SOV: 048

OTHER: 018

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SHCHUKIN, V.K.

Determining heat transfer coefficients in a pipe by the temperature distribution on the contour of its longitudinal section. Izv. vys. ucheb. zav.; av. tekh. 7 no.3:96-105 '64.

S/0147/64/000/003/0096/0105

ACCESSION NR: AP4043425

AUTHOR: Shchukin, V. K.

TITLE: Determining the heat loss factors in a tube according to the tempera-
ture distribution on the contour of its longitudinal section

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1964, 96-105

TOPIC TAGS: heat loss, temperature distribution, thermal insulation,
heat transfer

ABSTRACT: The author notes that the determination of the heat loss factor on
the basis of the experimentally measured temperature distribution on the sur-
faces of the wall participating in the heat transfer process eliminates the
need for heat flow measurements and imposes no limitations on the possible
variation in temperature along the length of the wall. Special attention is
called to the work of B. S. Petukhov ("Teploenergetika", No. 10, 1956), con-
taining a discussion of a method for determining the heat loss factor in a
tube according to the distribution of temperatures on its generatrices. The
author observes that this method was based on the assumption that the ends of
the tube were thermally insulated, although experience indicates that this

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ACCESSION NR: AP4043425

condition is extremely difficult to realize in actual practice. In this con-
nection, therefore,"the author presents a new method for determining the co-
efficient of heat loss with an arbitrary distribution of temperatures on all
four sides of a longitudinal section through the tube. Since liquid heat loss
in a tube with an axiosymmetrical temperature field is considered, the tempera-
ture of the liquid in the longitudinal section of the tube is determined from
the heat balance (a liquid with no internal heat sources is postulated). An
expression is derived for the local heat loss factor for a specific segment.
For the axiosymmetrical problem and a constant coefficient of thermoconductivity
for the tube (λ), the differential equation of thermoconductivity can be
written in the following form:

$$\frac{\partial^2 t}{\partial r^2} + \frac{1}{r}\frac{\partial t}{\partial r} + \frac{\partial^2 t}{\partial z^2} = 0.$$

This equation is solved by the Fourier method. The same problem is also con-
sidered for the case in which the wall of the tube has volumetric heat loss

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ACCESSION NR: AP4043425

(such conditions are encountered in the study of heat exchange in a magnetic field with Joule effect liberation in the tubing wall or with the tube heated by the passage of an electrical current). The analysis given in this article for the convergence of series for a tube with thermally insulated ends and internal heat sources in the wall, as well as Petukhov's experimental verification of a method for a tube with thermally insulated ends without internal liberation, provides a basis for the belief that the convergence of the series does not limit the area of applicability of the method. It is also claimed that the same technique can be employed to study heat loss in the case of an external longitudinal flow around the tube. Orig. art. has: 45 numbered formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 25Jan64

NO REF SOV: 003

ENCL: 00

OTHER: 000

SUB CODE: TD

3/3

L 27620-65   EWP(e)/EWT(1)/EWT(m)/EPF(n)-2/EWP(t)/EWP(k)/EWP(b)   Pf-4/Pu-4
JD/WW/WE   S/0147/65/000/001/0087/0094
ACCESSION NR: AP5005538

AUTHOR: Shchukin, V. K.; Koval'nogov, A. F.

TITLE: Temperatures of porous plates with internal heat release during effusion cooling

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1, 1965, 87-94

TOPIC TAGS: porous plate, coating, heat transfer, fuel element, reactor core

ABSTRACT: The cooling of porous plates with internal heat release by passage of gas can be used in nuclear reactors with porous fuel elements or for heating gas by passage through electrically heated porous plates. The maximum temperature and the temperature profile are of importance for determining the thermal stress in the plate. A method developed previously by P. Schneider is based on the assumption that the temperatures of the gas inside the pores and the pore walls are equal. To investigate the effect of this simplifying assumption, exact formulas were derived which allow for the error caused by the simplifying assumption as a function of the heat transfer coefficient and thermal conductivity of the material (porous

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L 27620-65
ACCESSION NR: AP5005538

steel plates of 50% and 30% porosity). The results showed that a decrease in ther-
mal conductivity increases the error; a change in the heat transfer coefficient
has only a slight effect on the error. The maximum temperature can be calculated
by the simplified method with sufficient accuracy only when the thermal conductivity
is sufficiently high and the porosity comparatively low. Orig. art. has: 4 fig-
ures and 29 formulas.   [PV]

ASSOCIATION: none

SUBMITTED: 27Dec63   ENCL: 00   SUB CODE: AS,TD

NO REF SOV: 001   OTHER: 004   ATD PRESS: 3190

Card 2/2

L 43895-65   EPF(c)/EPF(n)-2/EPR/EWT(1)/EWG(m)   Pr-4/Ps-4/Pu-4   WW

ACCESSION NR: AP5010075

UR/0170/65/008/004/0504/0510

AUTHOR: Shchukin, V. K.

TITLE: Thick wall method for investigating heat transfer in transverse-flow tubes

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 4, 1965, 504-510

TOPIC TAGS: heat transfer, heat conduction, thermal conductivity, Fourier series, temperature distribution

ABSTRACT: Three different expressions are given for calculating thermal diffusivity α by the use of temperature distribution data from tube surfaces. The temperature gradient term in the expression for α,
$$\alpha = -\frac{\lambda}{\theta_{cp}\varphi} \int_0^{?} \left(\frac{\partial t}{\partial r}\right)_{r_1} d\varphi,$$
is determined by solving the cylindrical Fourier-conduction equation in two dimensions, subject to boundary conditions, $t(r, \varphi) = t(r, \varphi + 2\pi)$;
$$t(r_1, \varphi) = \xi(\varphi); \quad t(r_2, \varphi) = \zeta(\varphi).$$
The solution is then extended to the case of temperature-dependent heat source terms in the heat-conduction equation. Expressions for mean and local thermal diffusion coefficients are solved by the network method. This reduces to evaluating the Fourier conduction equation in the

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L 43895-65

ACCESSION NR: AP5010075

modified (Cartesian) form to $\frac{\partial^2 t}{\partial u^2} + \frac{\partial^2 t}{\partial v^2} = 0$; where $u = r_1 \ln(r/r_1)$ and $v = r_1 \varphi$.

Orig. art. has: 25 equations and 2 figures.

ASSOCIATION: Aviatsionnyy institut,   Kazan' (Kazan Aviation Institute)

SUBMITTED: 20May64.   ENCL: 00   SUB CODE: TD, ME

NO REF SOV: 003   OTHER: 000
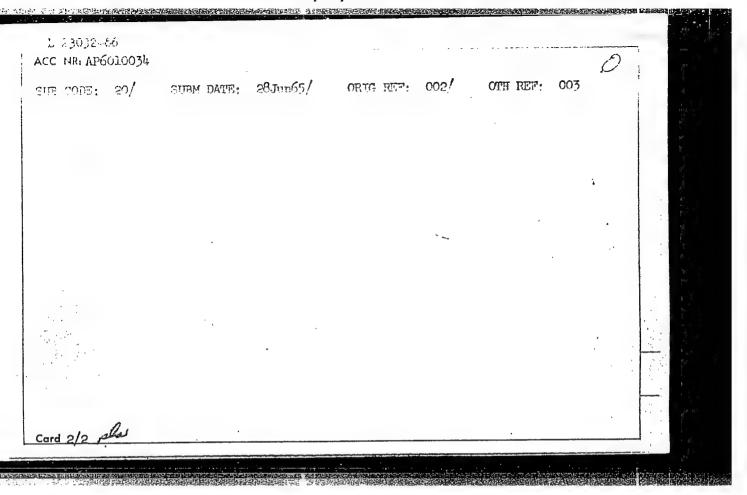
Card 2/2 CC

SHCHUKIN, Viktor Konstantinovich; GEL'FER, Ya.M., red.

[Heat transfer in nature and technology] Teploobmen v
prirode i tekhnike. Moskva, Nauka, 1965. 120 p.
(MIRA 18:7)

L 23032-66   EWT(d)/EWT(1)/EWP(m)/EWT(m)/EPF(n)-2/EWA(d)/T/ETC(m)-6/EWA(1)   IJP(c)

ACC NR: AP6010034   WW/DJ   SOURCE CODE: UR/0170/66/010/003/0357/0362

AUTHOR: Shchukin, V. K.

ORG: Aviation Institute, Kazan' (Aviatsionnyy institut)

TITLE: The effect of the temperature field on the stability of liquid flow between rotating cylinders .

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 3, 1966, 357-362

TOPIC TAGS: liquid flow, temperature dependence, heat effect, fuel thermal stability, steady flow,   thermal stress

ABSTRACT: On the basis of the Rayleigh method, formulas were obtained for estimating the effect of the value and direction of the heat flux on the stability of liquid between rotating cylinders. It was shown that this effect may be described by the dimensionless parameter K, formula $K = -\beta r_2 b = -\beta r_2 \dfrac{dt}{dr} = \dfrac{\beta}{\lambda} r_2 q$, where $K = \dfrac{\beta}{\lambda} r_2 q$ is a

dimensionless complex, r_2 is the radius of the outside cylinder, and q is the heat effect. The value and direction of the heat flux which determine the number K affects essentially the region of the steady motion of the liquid. When $K > 0 (q > 0)$, the increase of the heat flux leads to the expansion of steady flow regions. When the direction of the heat flux reversed the steady-flow region becomes narrower. Orig. art. has: 1 figure and 25 formulas. [Based on author's abstract]   [NT]

Card 1/2   UDC: 532.5

L 23032-66

ACC NR: AP6010034

SUB CODE: 20/ SUBM DATE: 28Jun65/ ORIG REF: 002/ OTH REF: 003

Card 2/2

ACC NR: AP6030333   SOURCE CODE: UR/0170/66/011/002/0171/0176

AUTHOR: Shchukin, V. K.

ORG: Kazan' Aviation Institute (Aviatsionnyy institut)

TITLE: Correlation of experimental data on hydraulic resistance in tubes with band-type turbulence generators

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 2, 1966, 171-176

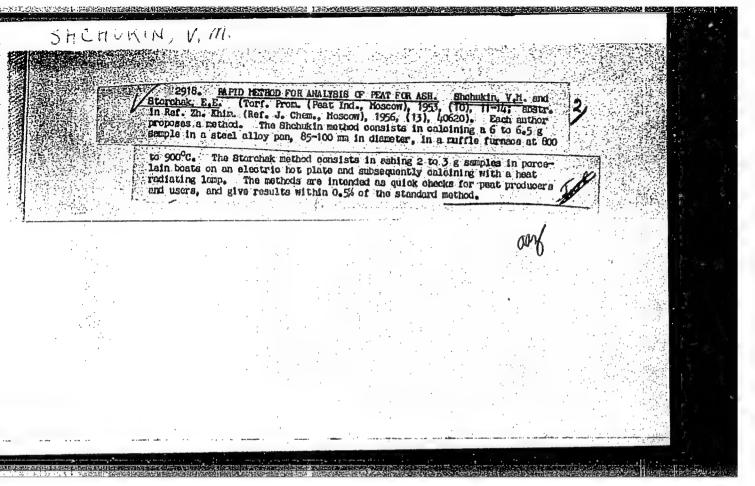TOPIC TAGS: hydraulic resistance, laminar flow, turbulence generator

ABSTRACT: The mechanisms of a fluid flow in a tube with a band-type turbulence generator, and in a coil are similar. This similarity yields a dimensionless equation for the correlation of experimental data on hydraulic resistance in tubes with band-type turbulence generators in a laminar flow with macrovortices and in a turbulent flow. The channel between the turbulizer and the wall of the tube is a coil with a semicircular cross section. The curvature of the channel depends on the pitch of the turbulence generator. Orig. art. has: 3 figures and 9 formulas. [Author's abstract]
SUB CODE: 20/SUBM DATE: 23Mar66/ORIG REF: 002/OTH REF: 005/

Card 1/1   UDC: 532.5+532.503.2

ACC NR: AP6036865

surface being insulated; and 3) a duct with heat transfer through both surfaces. The obtained results indicate that the magnitude and direction of heat flux, and the point of heat addition or removal do affect the location and size of the flow stability zones in a curvilinear duct, and, consquently, the flow regime, heat transfer conditions, and hydraulic resistance. Orig.art. has: 3 figures and 21 formulas. [WA-88]

SUB CODE: 21/ SUBM DATE: 28Jun65/ ORIG REF: 003/ OTH REF: 002

Card 2/2

SHCHUKIN, V. M.

2918. RAPID METHOD FOR ANALYSIS OF PEAT FOR ASH. Shchukin, V.M. and Storchak, E.E. (Torf. Prom. (Peat Ind., Moscow), 1953, (10), 11-14; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1956, (13), 40620). Each author proposes a method. The Shchukin method consists in calcining a 6 to 6.5 g sample in a steel alloy pan, 85-100 mm in diameter, in a muffle furnace at 800

to 900°C. The Storchak method consists in ashing 2 to 3 g samples in porcelain boats on an electric hot plate and subsequently calcining with a heat radiating lamp. The methods are intended as quick checks for peat producers and users, and give results within 0.5% of the standard method.

BOBRIYEVICH, A.P., sotrudnik; BONDARENKO, M.N., sotrudnik; GNEVUSHEV, M.A.,
sotrudnik; KIND, N.D., sotrudnik; KORESHKOV, B.Ya., sotrudnik;
KURYLEVA, N.A., sotrudnik; NEFEDOVA, Z.D., sotrudnik; POPUGAYEVA,
L.A., sotrudnik; POPOVA, Ye.E., sotrudnik; SKUL'SKIY, V.D.,
sotrudnik; SMIRNOV, G.I., sotrudnik; YURKEVICH, R.K., sotrudnik;
FAYNSHTEYN, G.Kh., sotrudnik; SHCHUKIN, V.N., sotrudnik; BUROV,
A.P., nauchnyy redaktor; SOBOLEV, V.S., nauchnyy redaktor;
VERSTAK, G.V., redaktor izdatel'stva; KRYNOCHKINA, K.V., tekhni-
cheskiy redaktor

[Diamonds of Siberia] Almazy Sibiri. [Moskva] Gos.nauchno-tekhn.
izd-vo lit-ry po geol. i okhrane nedr, 1957. 157 p. (MLRA 10:7)

1. Russia (1923-   U.S.S.R.) Ministerstvo geologii i okhrany nedr.
2. Amakinskaya ekspeditsiya Glavuralsibgeologii Ministerstva geolo-
gii i okhrany nedr SSSR (for Bobriyevich, Bondarenko, Gnevushev,
Kind, Koreshkov, Kuryleva, Nefedova, Popugayeva, Popova, Skul'skiy,
Smirnov, Yurkevich, Faynshteyn, Shchukin)
     (Siberia--Diamonds)

25(5)   PHASE I BOOK EXPLOITATION   SOV/2393

Leningrad. Politekhnicheskiy institut

Mashinostroyeniye; ekonomika, organizatsiya i planirovaniye
   proizvodstva (Machinery Manufacturing; Economics, Organization
   and Planning of Production) Moscow, Mashgiz, 1958. 110 p.
   (Series: Its: Trudy, Nr 200) Errata slip inserted. 2,800 .
   copies printed.

Sponsoring Agency: USSR.Ministerstvo vysshego obrazovaniya.

Resp. Ed.: V.S. Smirnov, Doctor of Technical Sciences, Professor;
   Eds.: Ye. M. Karlik, Candidate of Economic Sciences, Docent;
   and S.A. Sokolitsyn, Candidate of Technical Sciences, Docent;
   Tech. Ed.: R.G. Pol'skaya.

PURPOSE: This collection of articles is intended for engineering
   and technical personnel of machine-manufacturing establishments.

COVERAGE: This collection covers the theoretical aspects of the

Card 1/4

Machinery Manufacturing; (Cont.)   SOV/2393

economics, organization, and planning of production and the
actual operation of machine-manufacturing establishments.
The first five articles deal with problems of classifying
production lines for lot production, variations of the flow
of lots of parts, and duration of the machining cycle, etc.
The remaining articles are devoted to the economic efficiency
of new technology, problems of quality control, and to the
question of specialization and cooperation. No personalities
are mentioned. References are given at the end of several
articles.

TABLE OF CONTENTS:

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Machinery Manufacturing; (Cont.)   SOV/2393

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28(5)   SOV/115-59-4-10/27

AUTHOR   Shchukin, V.N.

TITLE·   Producing Spare Parts for Measuring Devices and In-
                struments (Vypuskat' zapasnyye detali k izmeritel'-
                nym priboram i instrumentam)

PERIODICAL.   Izmeritel'naya tekhnika, 1959, Nr 4, p 16 (USSR)

ABSTRACT: The author states that a number of instrument plants
                does not produce any spare parts for rapid wearing
                parts. He mentions vernier calipers. produced by
                the plant "Kalibr". dial indicators manufactured
                by the plant "Krasnyy instrumental'shchik" and in-
                side micrometer calipers. The author demands that
                the instrument plants produce the required spare
                parts.

Card 1/1

SHCHUKIN, V.N.

Problems of repairing measuring equipment have been set aside. Izm.
tekh. no.3:56 Mr '60.   (MIRA 13:6)
        (Measuring instruments--Maintenance and repair)

ZVEDER, L.N.; SHCHUKIN, V.N.

Nature of faults in the Daaldnyskii kimberlite region. Geol. i
geofiz. no.6:132-134 '60. (MIRA 13:9)

1. Vostochno-Sibirskiy geologicheskiy institut Sibirskogo otdeleniya
AN SSSR.
(Siberia--Kimberlite)

BOBRIYEVICH, A.P.; KRYATOV, B.M.; SHCHUKIN, V.N.

Some data on the geology and petrography of Siberian kimberlites.
Trudy IAFAN SSSR. Ser.geol. no.6:24-36 '61.   (MIRA 14:9)
(Daldyn Valley--Kimberlite)

SHCHUKIN, V.N.; KRYATOV, B.M.; VOLOTOVSKIY, A.G.

Relationship between kimberlites and traps. Trudy IAFAN SSSR.
Ser.geol. no.6:45-48 '61.   (MIRA 14:9)
          (Siberian Platform--Kimberlite)
          (Siberian Platform--Rocks, Igneous)

KOZLOV, I.T.; SHCHUKIN, V.N.

Weathering surface on trap rocks in the central part of the
Siberian Platform. Geol. i geofiz. no.2:137-140 '64.

(MIRA 18:4)

1. Amakinskaya ekspeditsiya, poselok Nyurba.

SHCHUKIN, V.N.

Repair of dial indicators.   Izm.tekh. no.3:13-14 Mr '63.
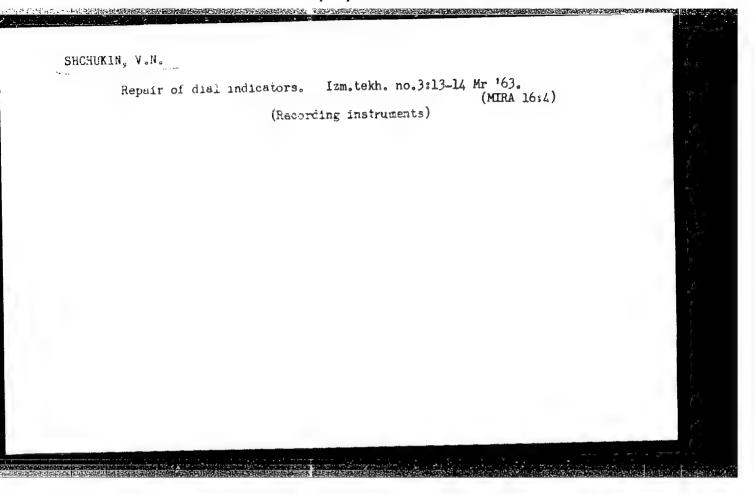(MIRA 16:4)
(Recording instruments)

L 41684-65   EWT(m)   Peb -- DIAAP
ACCESSION NR: AT5003176   S/3065/62/000/041/0045/0063   24
                                                                     23
AUTHOR: Shchukin, V. P.   B+1

TITLE: Design of laboratory buildings for work with radioactive materials

SOURCE: Moscow. Inzhenerno-stroitel'nyy institut. Sbornik trudov, no. 41, 1962.
Kafedra stroitel'stva yadernykh ustanovok. Proyektirovaniye i stroitel'stvo
yadernykh ustanovok (Department for the construction of nuclear engineering in-
stallations. Design and construction of nuclear engineering installations); 45-
63

TOPIC TAGS: laboratory architecture, radioactive material processing, nuclear
laboratory design, isotope laboratory design, radiation shielding, laboratory
personnel safety

ABSTRACT: The author is concerned with planning considerations and architectural
approaches to radioactive materials installations. He begins by reviewing the
conditions which lead to problems in architectural planning of buildings for
radioactive research and processing, and points out that the human operator can
be exposed to nuclear radiations either by penetrating radiation from the outside
(mainly gamma radiation) or by direct contact between radioactive materials and

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human organs, such as the skin, blood etc., as in the case of ingestion. Atten-
tion is directed to the basic hazard of any inadequately sealed radioactive
material, because of possible evaporation, travel as dust, and adsorption onto
various surfaces. By any one of these processes, the premises can become con-
taminated and present a continuing danger. The shielding of personnel and sen-
sitive instruments and the prevention of contamination thus become the two basic
safety problems in a nuclear laboratory. Requirements for building design are
then listed as conditioned by: safety rules, the branch of science involved,
laboratory mission and programs,equipment and specific activities. Architectural
considerations dictate balancing of constructional and operational constraints.
An example is presented involving the mutual positioning of hot chambers, e.g.
between "clean" and "dirty" zones, which enables them to be operated from the
clean zone, while repairing and maintaining them from the dirty zone. An impor-
tant structural consideration is the provision of appropriate floor strength to
support the heavy protective containers carrying radioactive materials within the
installation. Pointers on architectural planning, construction elements and in-
terior finishing are given. The subject of hot chamber location and some

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ACCESSION NR: AT5003176

architectural solutions are reviewed. Conditions favoring separate hot chambers within each individual building, versus the provision of a separate hot chamber building within the installation, are discussed. Constructional integration of hot chambers is discussed, with the alternatives of embedding the primary structural members in the chamber walls or of designing the chambers themselves as primary structural members. Flexibility in the architectural approach, with adjustment to the specific needs of the installation, is advocated. Orig. art. has: 11 figures.

ASSOCIATION: Kafedra stroitel'stva yadernykh ustanovok, Moskovskiy inzhenerno-stroitel'nyy institut, (Department for the Construction of Nuclear Engineering Installations, Moscow Engineering and Construction Institute)

SUBMITTED: 00   ENCL: 00   SUB CODE: NP

NO REF SOV: 006   OTHER: 004

Card 3/3

SHCHUKIN, V.R., inzhener.

Shortcomings of the multiple firing method. Bezop.truda v prom. 1 no.8:8-10 Ag '57.
(MLRA 10:8)

1.Nachal'nik upravleniya Stalinskoge okruga Gosgortekhnadzora SSSR.
(Donets Basin--Coal mines and mining)

SHCHUKIN, V.R., inzh.

Evaluating the safety of roof control methods at Donets Basin mines.
Bezop.truda v prom. 2 no.9:6-8 S '58.   (MIRA 11:9)

1.Upravleniye Stalinskogo okruga Gostorgtekhnadzora USSR.
          (Donets Basin--Coal mines and mining--Safety measures)

SHCHUKIN, V.R., inzh.

Brigades of Communist labor in Donets Basin mines. Bezop. truda v prom. 3 no.6:1-2 Je '59. (MIRA 12:10)

1.Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora USSR.
(Donets Basin--Efficiency, Industrial)

SHCHUKIN, V.R., inzh.

Improving technical mine inspection. Bezop. truda v prom. 3 no.11:
26-29 N '59.   (MIRA 13:3)

1.Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora
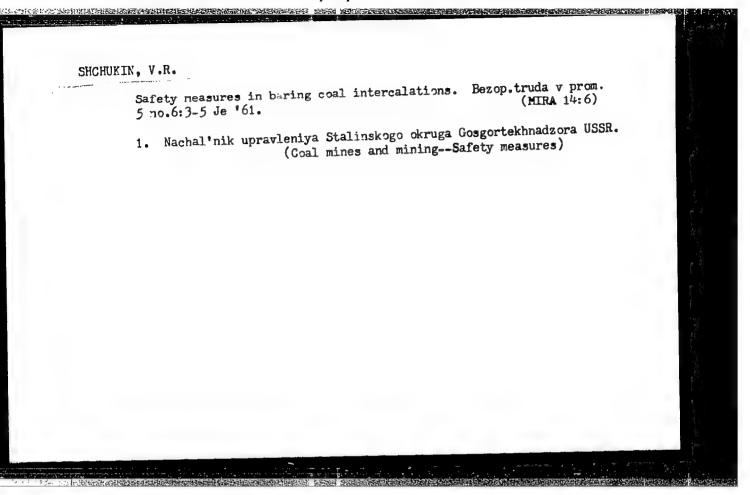USSR.
                    (Mine inspection)

SHCHUKIN, V.R., inzh.; BERDNIKOV, M.D., inzh.

Over-all inspection of caol mines of the Stalino Economic Council.
Bezop.truda v prom. 4 no.6:27-28 Je '60.   (MIRA 14:3)

1. Upravleniye Stalinskogo okruga Gosgortekhnadzora USSR.
                (Stalino Province—Mine inspection)

SHCHUKIN, V.R.

Safety measures in baring coal intercalations. Bezop.truda v prom.
5 no.6:3-5 Je '61. (MIRA 14:6)

1. Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora USSR.
(Coal mines and mining--Safety measures)
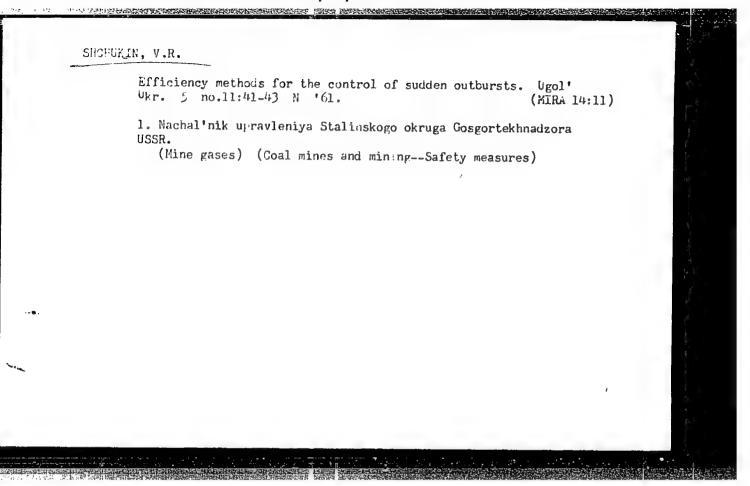
SHCHUKIN, V.R., inzh.

Improving work safety in mining.   Bezop.truda v prom. 5
no.7:35-36 Jl '61.   (MIRA 14:6)

1. Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora
USSR.
          (Coal mines and mining--Safety measures)

SHCHUKIN, V.R.

Efficiency methods for the control of sudden outbursts. Ugol'
Ukr. 5 no.11:41-43 N '61.   (MIRA 14:11)

1. Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora
USSR.
   (Mine gases) (Coal mines and mining--Safety measures)

SHEVYAKOV, L.D., akademik; IVANOV, A.M.; BUBYR', V.A., gornyy inzh.;
    MONIN, M.I., gornyy inzh.; NEKRASOVSKIY, Ya.E., doktor tekhn.-
    nauk; SHCHUKIN, V.R.

Readers' response to A.A.Shamin, A.M.Belen'kii, and A.V.Galkin's
article "Pillar systems of mining flat seams without undermining
the wall rock in the development operations." Ugol' Ukr. 6
no.9:43-47 S '62.   (MIRA 15:9)

1. Upravlyayushchiy trestom Rutchenkovugol' (for Ivanov).
2. Gosudarstvennyy institut po proyektirovaniyu shakhtnogo
stroitel'stva v yuzhnykh rayonakh SSSR (for Bubyr', Monin).
3. Dnepropetrovskiy gornyy institut (for Nekrasovskiy).
4. Nachal'nik upravleniya Donetskogo okruga Komiteta po nadzoru
za bezopasnym vedeniyem rabot v promyshlennosti i gornomu
nadzoru pri Sovete Ministrov UkrSSR (for Shchukin).
            (Shamin, A.A.) (Belen'kii, A.M.) (Galkin, A.V.)

KHODOT, V.V., doktor tekhn. nauk, red.; BOBROV, I.V., kand. tekhn.
nauk, red.; RUDCHENKO, V.P., red.; TABAKOV, A.G., red.;
SHCHUKIN, V.R., red.; KULIKOV, A.P., red.; ANDROSOV, M.S.,
otv. red.; SHEVYAKOV, F.D., otv. red.; POTAPOV, V.I., otv.
red.; PLEYSER, Yu.S., otv. red.; VINOGRADOVA, G.V., red.
izd-va; IL'INSKAYA, G.M., tekhn. red.; BOLDYREVA, Z.A., tekhn.
red.

[Control of sudden outbursts in coal mines; proceedings of the
scientific and technical conference held in Donets in December
1960]Bor'ba s vnezapnymi vybrosami v ugol'nykh shakhtakh; sbor-
nik trudov nauchno-tekhnicheskogo soveshchaniia, sostoiavshe-
gosia v gor. Donetske v dekabre 1960 g. Moskva, Gosgortekhiz-
dat, 1962. 602 p. (MIRA 15:9)

1. Institut gornogo dela imeni A.A.Skochinskogo (for Khodot).
2. Kombinat "Donetskugol'" (for Rudchenko). 3. Gosudarstven-
nyy komitet pri Sovete Ministrov Ukrainskoy SSR po nadzoru za
bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru,
Donetskiy okrug (for Shchukin).
(Coal mines and mining—Safety measures)

SHIFKIN, V.R., inzh.

Improve mining engineering control. Bezop. truda v prom. 7 no.12:
1-2 D '63.   (MIRA 18:7)

1. Nachal'nik Upravleniya Donetskogo okruga Gosudarstvennogo komiteta
pri Sovete Ministrov Uk-SSR po nadzoru za bezopasnym vedeniyem rabot
v promyshlennosti i gornomu nadzoru.

RATTS, Emmanuil Genrikhovich, kand.tekhn.nauk; TSEYTLIN, Sholom Yudovich, kand.tekhn.nauk; MASARSKIY, Aba Solomonovich; SHCHUKIN, Viktor Semenovich, starshiy inzh.; UKRAINCHIK, M.M., inzh., red.

[Large prestressed concrete "Double T" slabs for roofs of buildings] Predvaritel'no napriazhennye zhelezobetonnye krupnye paneli "dvoinoe T" dlia pokrytii zdanii; iz opyta NIIZHelezobetona i zavoda No.22 Glavmospromstroimaterialov. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 27 p.

(MIRA 14:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. Byuro tekhnicheskoy informatsii. 2. Zaveduyushchiy laboratoriyey sbornykh zhelezobetonnykh konstruktsiy Nauchno-issledovatel'skogo instituta zhelezobetonnykh izdeliy i nerudnykh materialov (for Ratts). 3. Zaveduyushchiy sektorom inzhenernykh konstruktsiy Nauchno-issledovatel'skogo instituta zhelezobetonnykh izdeliy i nerudnykh materialov (for TSeytlin). 4. Glavnyy inzh. zavoda No.22 Glavmospromstroymaterialov (for Masarskiy). 5. Nauchno-issledovatel'skiy institut zhelezobetonnykh izdeliy i nerudnykh materialov (for Shchukin).

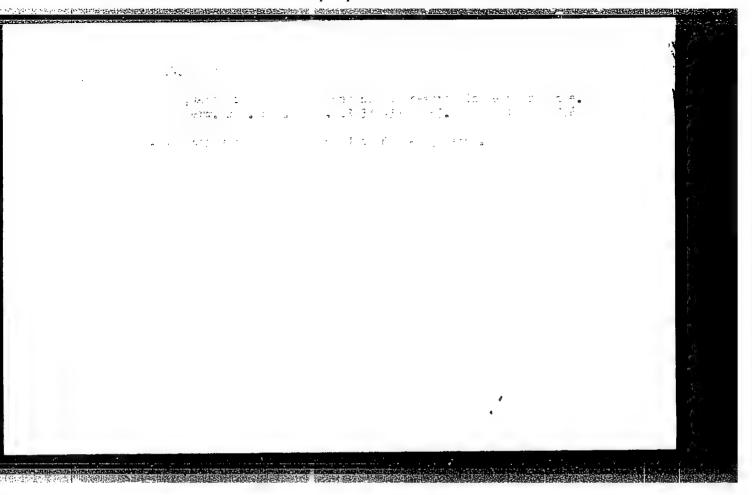(Precast concrete construction)
(Roofing, Concrete)

USOV, Nikolay Ivanovich; SHCHUKIN, Valentin Timofeyevich; GAL'PERIN,
    S.Yu., nauchnyy red.; UDAL'TSOV, O.A., red.; GURDZHIYEVA,
    A.M., tekhn. red.

[Even in days of peace there is room for heroic deeds] I v
mirnye dni est' mesto podvigam. Leningrad, Ob-vo po raspro-
straneniiu polit. i nauchn. znanii RSFSR, 1962. 50 p.
                                              (MIRA 15:10)
        (Labor and laboring classes)

AKIMOV, N.I.; VOLKOV, S.P.; KONOVALOVA, N.A.; OSINOVSKAYA, R.I.; PLISKO,
    Yu.Yu.; SEVEROV, M.N.; STEPANOV, L.A.; SHCHUKIN, V.Ya.; VORONI-
    CHEV, M.P., red.; TSARENKO, A.P., red.; VERINA, G.P., tekhn.red.
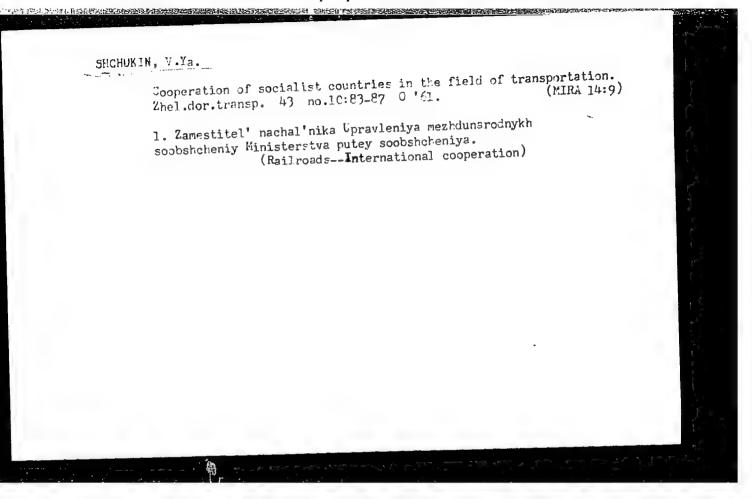
[International railroad transportation] Mezhdunarodnye zhelezno-
dorozhnye soobshcheniia. Pod red. M.P.Voronicheva. Moskva, Gos.
transp.zhel-dor.izd-vo, 1959. 242 p.   (MIRA 13:2)
                (Railroads)

SHCHUKIN, V.Ya.

International transportation organizations and the part
played in them by the railroads of the U.S.S.R. Zhel. dor.
transp. 41 no.5:78-84 My '59.   (MIRA 12:7)

1.Zamestitel' nachal'nika upravleniya mezhdunarodnykh soobshcheniy
Ministerstva putey soobshcheniya.
                    (Railroads)

SHCHUKIN, V.Ya.

Cooperation of socialist countries in the field of transportation.
Zhel.dor.transp. 43 no.10:83-87 O '61.   (MIRA 14:9)

1. Zamestitel' nachal'nika Upravleniya mezhdunarodnykh
soobshcheniy Ministerstva putey soobshcheniya.
                (Railroads--International cooperation)

PATRIKEYEV, A.B., inzh., SHCHUKIN, Yu.A., inzh.

Horizontal force interaction of running wheels of rail bridge
cranes. Vest. mashinostr. 45 no.1:31-34 Ja '65.

(MIRA 18:3)

SHCHUKIN, Ya.A.; MELESHKO, I.S.

Changing the design of supporting walls of sliding pipes in a
continuous furnace. Sbor.rats.predl.vnedr.v proizv. no.5:34-35
'60.   (MIRA 14:8)

1. Magnitogorskiy metallurgicheskiy kombinat.
               (Furnaces, Heating)

FEDORENKO, N.; SHCHUKIN, Ye., kand. ekonom. nauk

Production of synthetic materials should have a stable raw
material base. NTO 5 no.3:43-44 Mr '63.   (MIRA 16:4)

1. Chlen-korrespondent AN SSSR, predsedatel' ekonomicheskoy
sektsii TSentral'nogo pravleniya Vsesoyuznogo khimicheskogo
obshchestva imeni Mendeleyeva (for Fedorenko).
(Synthetic products)

SHCHUKIN, V.Ya.

Expansion of international communications is an important factor for the strengthening of economic and cultural relations. Zhel. dor.transp. 42 no.9:37-40 S '60.   (MIRA 13:9)

1. Zamestitel' nachal'nika Upravleniya mezhdunarodnykh soobshcheniy Ministerstva putey soobshcheniya.
          (Railroads--Internation cooperation)

MOUSSLY, Nazim; PAVLOV, M.M. [translator]; SHCHUKIN, Ye.A., redaktor;
SHAPOVALOV, V.I., tekhnicheskiy redaktor.

[The water problem in Syria] Vodnaia problema v Sirii. Perevod s
frantsuzskogo M.M.Pavlova. Predisl. A.P.Oreshnikova. Redaktor
E.A.Shchukin. Moskva, Izd-vo inostrannoi lit-ry, 1954. 283 p.
(MLRA 8:2)

(Syria--Water supply) (Syria--Hydraulic engineering)